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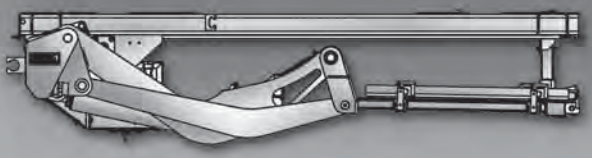
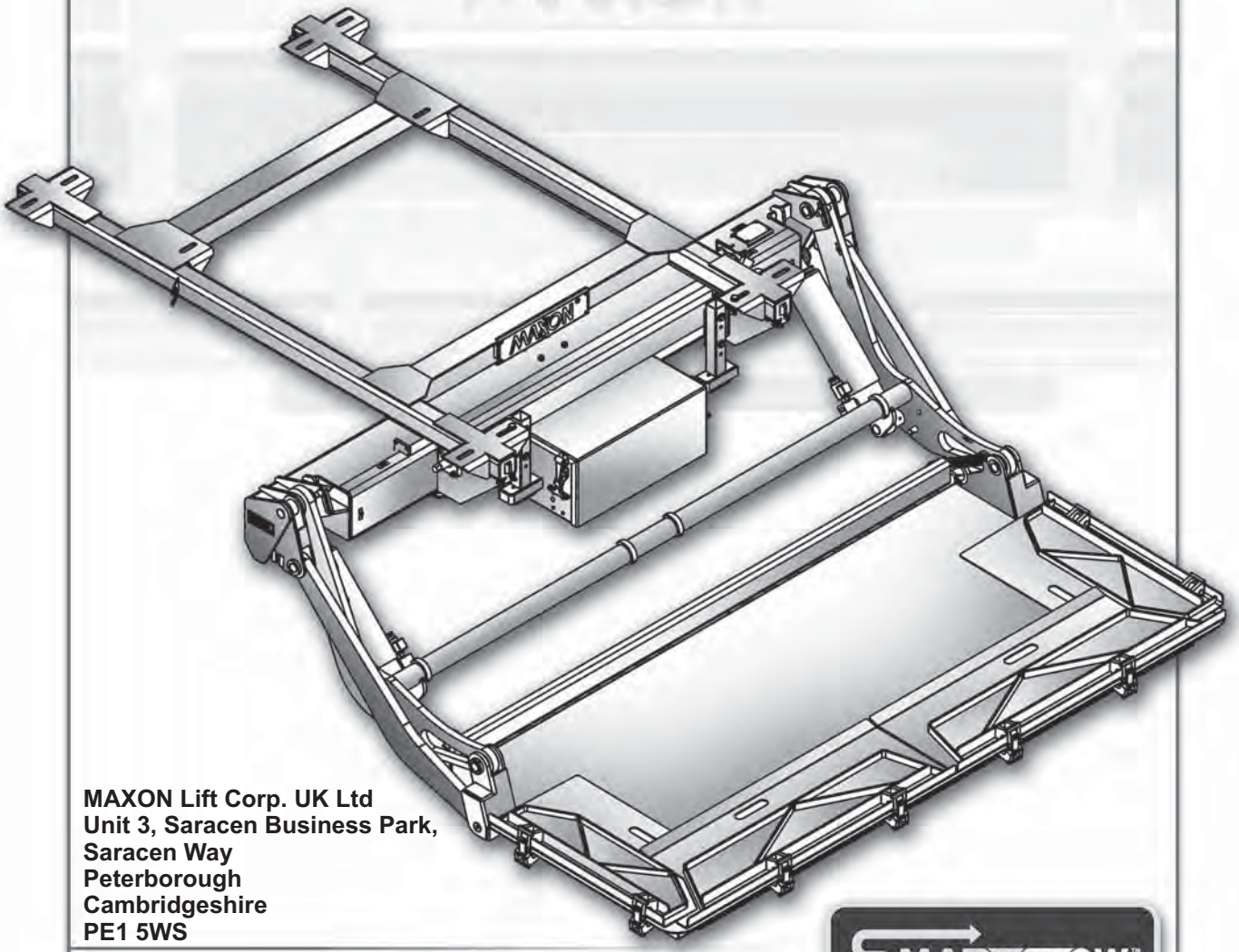
APRIL 2012



MAX S Series

INSTALLATION MANUAL
MAX15S & MAX20S



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SMARTSTOW™ MAXON

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Comply with the following WARNINGS and SAFETY INSTRUCTIONS while installing Tail Lifts. Refer to WARNING, CAUTION, and SAFETY INSTRUCTIONS decals on Tail Lift.

⚠ WARNING

- Do not stand, or allow obstructions, under the platform when lowering the Tail Lift. **Be sure your feet are clear of the Tail Lift.**
- **Keep fingers, hands, arms, legs, and feet clear of moving Tail Lift parts (and platform edges) when operating the Tail Lift.**
- **Correctly stow platform when not in use. Extended platforms could create a hazard for people and vehicles passing by.**
- **Make sure vehicle battery power is disconnected** while installing Tail Lift. Connect vehicle battery power to the Tail Lift only when installation is complete or as required in the installation instructions.
- If it is necessary to stand on the platform while operating the Tail Lift, keep your feet and any objects clear of the inboard edge of the platform. Your feet or objects on the platform can become trapped between the platform and the vehicle body.
- Never perform unauthorised modifications on the Tail Lift. Modifications may result in early failure of the Tail Lift and may create hazards for Tail Lift operators and mechanics.

SAFETY INSTRUCTIONS

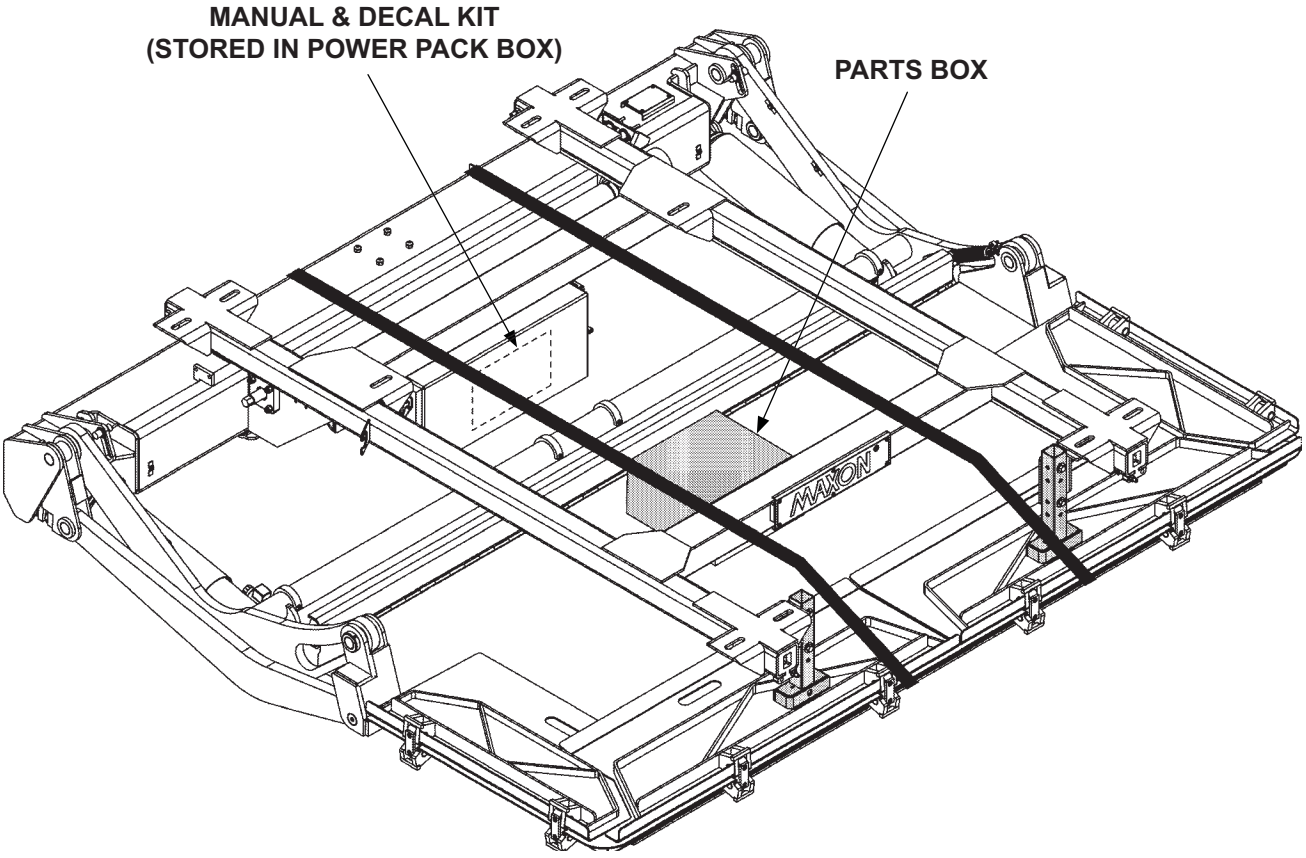
- Read and understand the instructions in this **Installation Manual** before installing Tail Lift.
- Before operating the Tail Lift, read and understand the operating instructions.
- Comply with all **WARNING** and instruction decals attached to the Tail Lift.
- Keep decals clean and legible. If decals are illegible or missing, replace them.
- Consider the safety and location of bystanders and location of nearby objects when operating the Tail Lift. Stand to one side of the platform while operating the Tail Lift.
- Do not allow untrained persons to operate the Tail Lift.
- Wear appropriate safety equipment such as protective eyeglasses, faceshield and clothing while performing maintenance on the Tail Lift and handling the battery. Debris from drilling and contact with battery acid may injure unprotected eyes and skin.
- Be careful working by an automotive type battery. Make sure the work area is well ventilated and there are no flames or sparks near the battery. Never lay objects on the battery that can short the terminals together. If battery acid gets in your eyes, immediately seek first aid. If acid gets on your skin, immediately wash it off with soap and water.
- If an emergency situation arises (vehicle or Tail Lift) while operating the Tail Lift, release the control switch to stop the Tail Lift.
- A correctly installed Tail Lift operates smoothly and reasonably quiet. The only noticeable noise during operation comes from the power unit while the platform is raised and lowered. Listen for scraping, grating and binding noises and correct the problem before continuing to operate Tail Lift.

TAIL LIFT COMPONENTS

⚠ CAUTION

Prevent injuries and equipment damage. Before cutting the shipping straps, put Tail Lift and pallet on level ground that will support at least 680 kg. Be careful lifting and moving components (such as body pressing) after shipping straps are removed.

NOTE: Make sure you have all components and parts before you start installing Tail Lift. Compare parts in the parts box (and each kit box) with packing list enclosed in each. If parts and components are missing or incorrect, call the telephone number given on the packing list.



MAIN ASSEMBLY

TAIL LIFT COMPONENTS
FIG. 4-1

PARTS BOX CONTENTS

	NOMENCLATURE OR DESCRIPTION	QTY.	PART NUMBER
REF	PARTS BOX	1	268581-01
1	BRACKET, EURO FRAME CLAMP	10	268584-01
2	FLAT WASHER, M14	10	903425-13
3	FLAT WASHER, 5/8” GRADE 8	10	903442-07
4	LOCK NUT, M14, FLANGED	10	903124-05
5	WASHER SET, 5/8”, SELF-ALIGNING	10	903441-05
6	HEX HEAD SCREW, M14 X 80MM LG, CLASS 10.9	10	900806-09
7	MEGAFUSE & HOLDER ASSEMBLY, 150AMP	1	906510-01
8	MARKER FLAG KIT	1	PL00010
9	LIFT STOPPER BLOCK	2	284047-01

TABLE 5-1

MANUAL & DECAL KIT CONTENTS

	NOMENCLATURE OR DESCRIPTION	QTY.	PART NUMBER
REF	MANUAL & DECAL KIT	1	268469-01
1	INSTALLATION MANUAL	1	M-08-19
2	OPERATION MANUAL	1	M-08-20
3	MAINTENANCE MANUAL	1	M-08-21
4	DECAL SHEET (1500 KG CAPACITY)	1	267833-02
	DECAL SHEET (2000 KG CAPACITY)	1	267833-03
5	TAIL LIFT LOAD TESTING	1	5-90020
6	TAIL LIFT TEST CERTIFICATION	1	5-90028
7	DOCUMENT ENVELOPE	1	5-90029
8	SHORTAGE LETTER	1	5-90031

TABLE 5-2

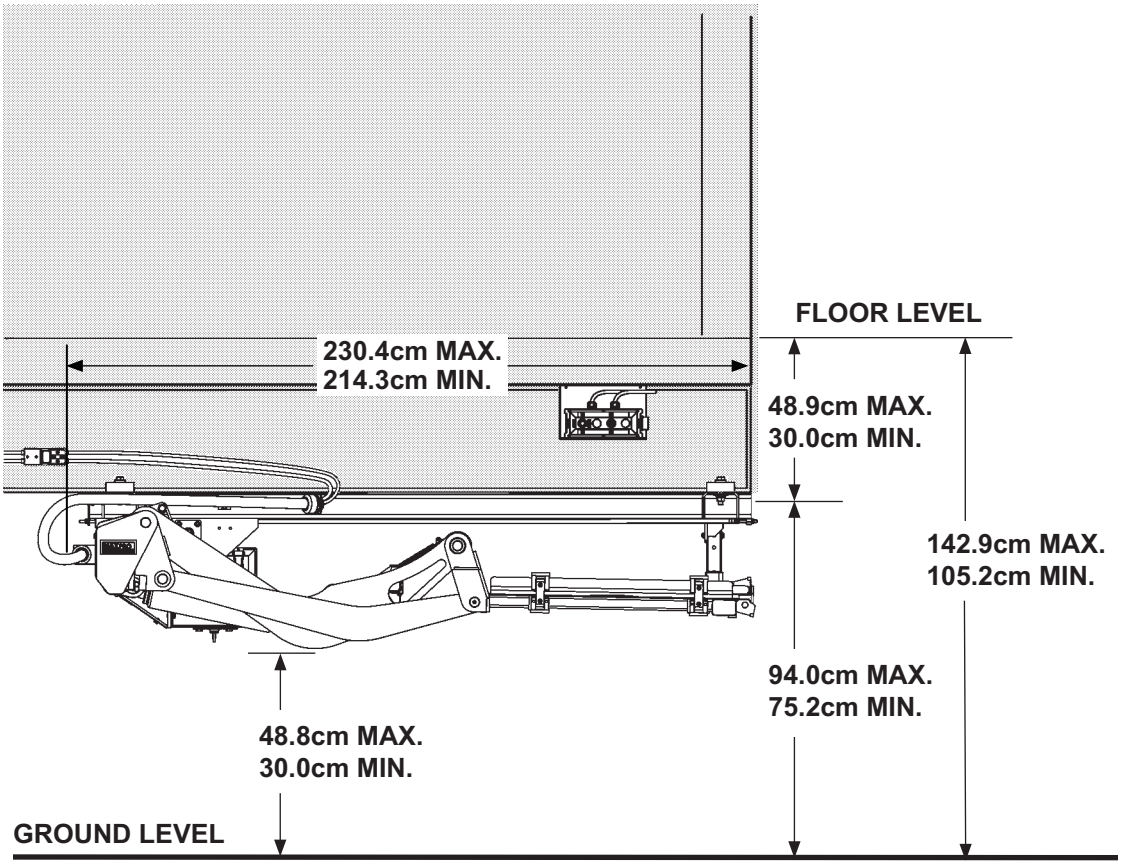
VEHICLE REQUIREMENTS

NOTE: BODY maximum and minimum operating bed height:
Maximum height is **53”** (Unloaded). Minimum height is **46”** (Loaded). On vehicle bodies equipped with swing-open doors, the platform may have to be modified to install this Tail Lift.

NOTE: Make sure vehicle is parked on level ground while preparing vehicle and installing Tail Lift.

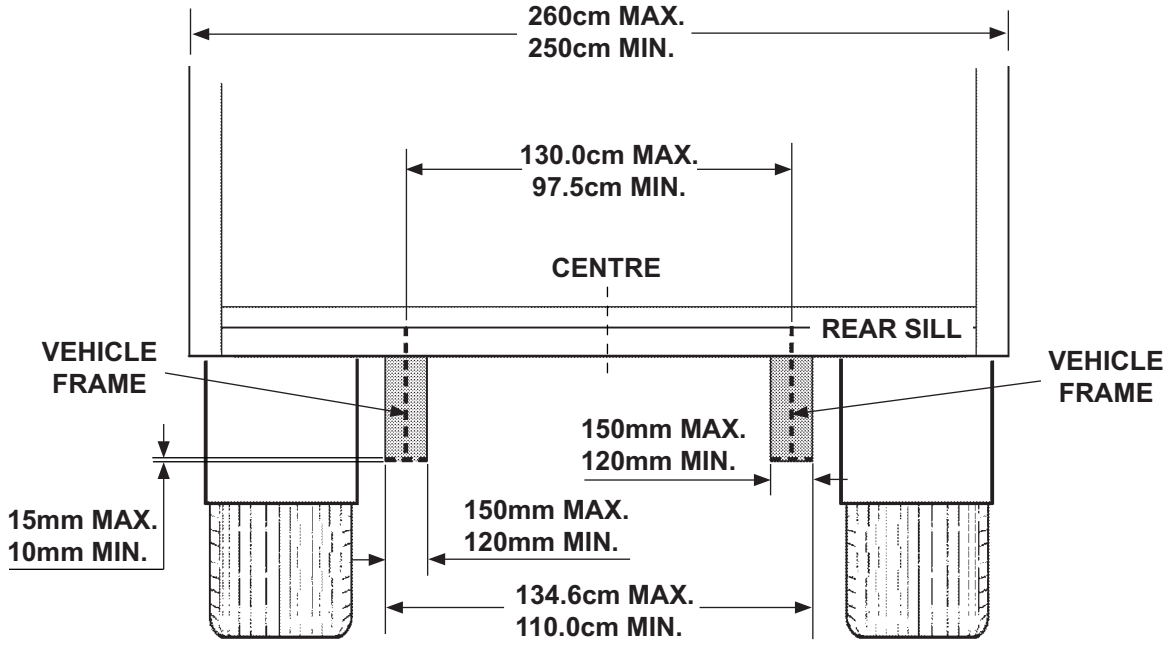
NOTE: Dimensions are provided as reference for fitting Tail Lift to vehicle body.

Check for correct clearances **(FIGS. 6-1 & 7-1)** on vehicle and Tail Lift to prevent interference with installed Tail Lift.



CLEARANCE DIMENSIONS
FIG. 6-1

VEHICLE REQUIREMENTS - Continued



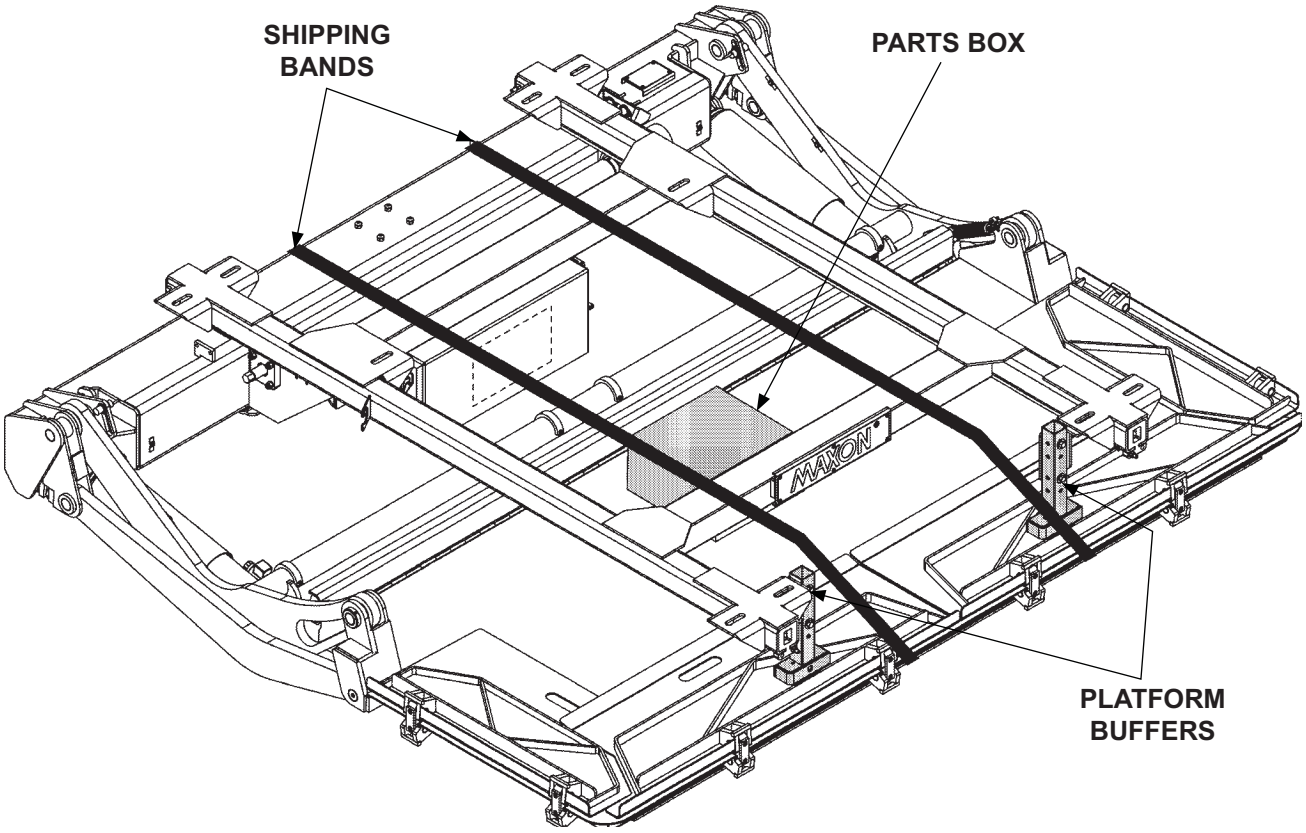
VEHICLE FRAME & BODY WIDTH
FIG. 7-1

WORK LIGHTING

The British Standard Code of Practice for Tail Lifts **(BS:EN1756 Part 1)** recommends suitable work lighting, if necessary for operating the Tail Lift, be provided for the platform loading area of the Tail Lift.

STEP 1 - PREPARE TAIL LIFT

1. Remove shipping bands and parts box from shipping pallet **(FIG. 8-1)**.



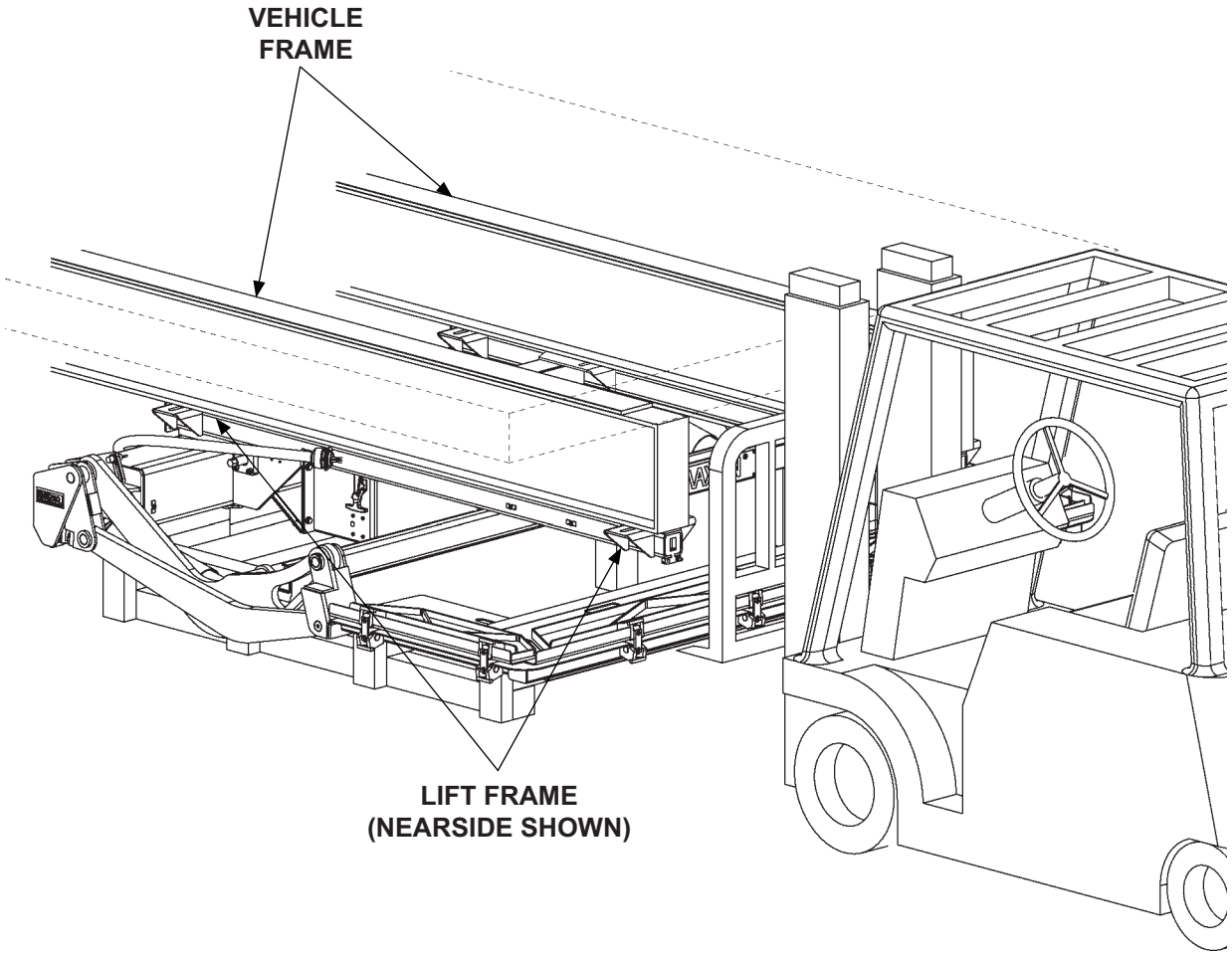
REMOVING SHIPPING BANDS, PARTS BOX & PLATFORM BUFFERS FIG. 8-1

> **NOTE:** Platform buffer brackets must be unbolted, but not removed, from Tail Lift frame until Tail Lift is bolted to vehicle frame. Bolt the frame buffers on only when bolting Tail Lift to vehicle frame.

2. Unbolt, but do not remove, 2 platform buffer brackets from frame **(FIG. 8-1)**.

STEP 2 - FIT TAIL LIFT TO VEHICLE

1. Use forklift to centre the Tail Lift frame on and below vehicle frame **(FIG. 9-1)**.



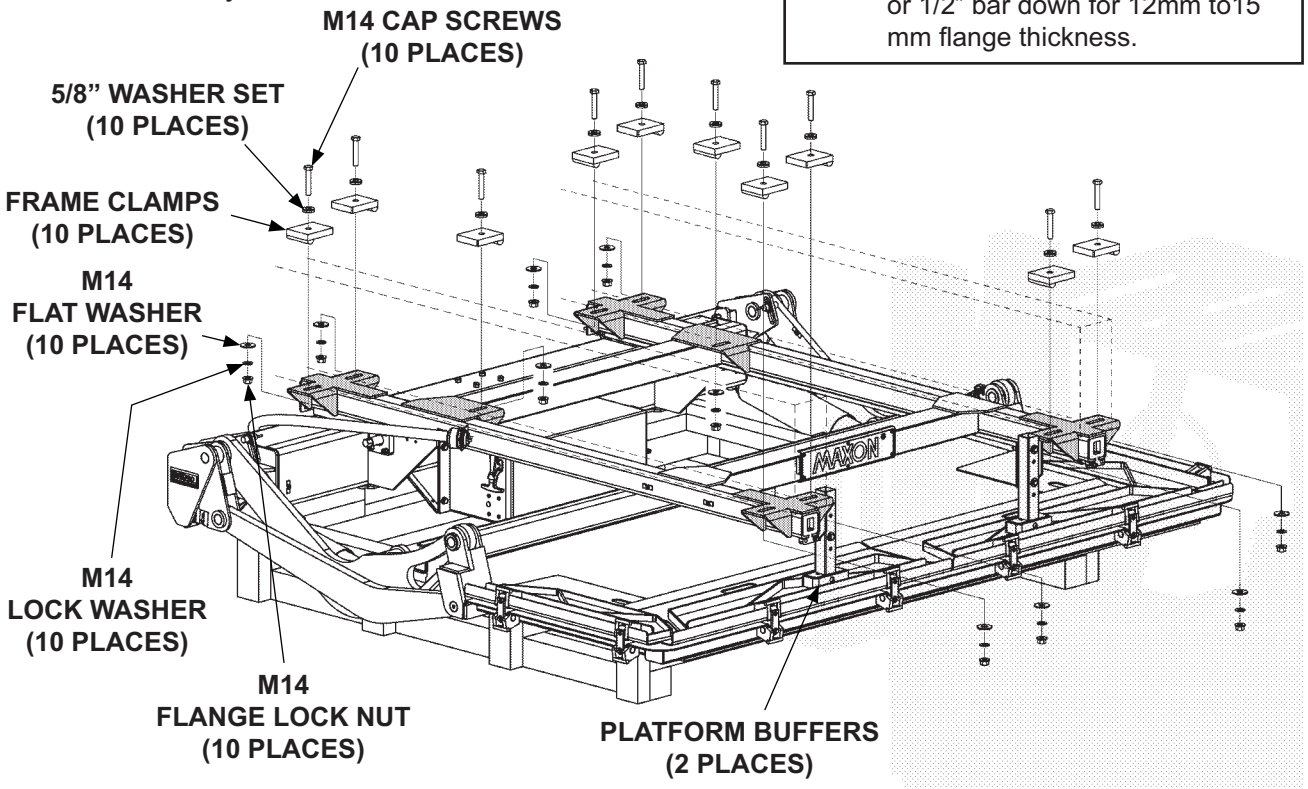
POSITIONING TAIL LIFT ON VEHICLE FRAME
FIG. 9-1

2. Raise Tail Lift until all 4 corners of the frame make contact with bottom of vehicle frame **(FIG. 9-1)**.

STEP 2 - FIT TAIL LIFT TO VEHICLE - Continued

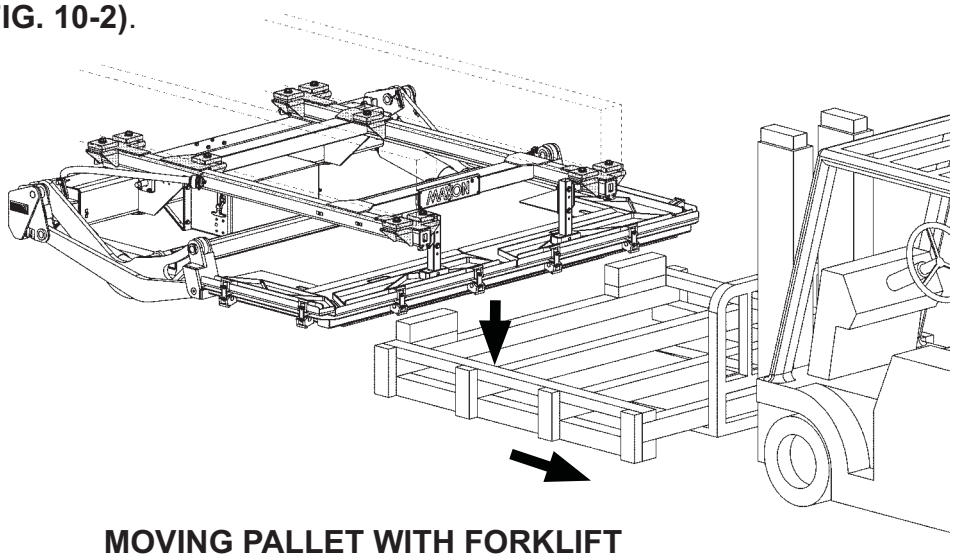
3. Bolt clamps and platform buffer brackets to Tail Lift frame **(FIG. 10-1)**. Clamps, bolts, washers, and lock nuts are contained in the parts box. Tighten bolts securely.

NOTE: Frame clamps are reversible to suit flange thickness of vehicle frame. Position 3/8" bar down for 10mm to12mm flange thickness or 1/2" bar down for 12mm to15 mm flange thickness.



BOLTING TAIL LIFT FRAME CLAMPS AND PLATFORM BUFFERS
FIG. 10-1

4. Move forklift and pallet away from Tail Lift and vehicle **(FIG. 10-2)**.



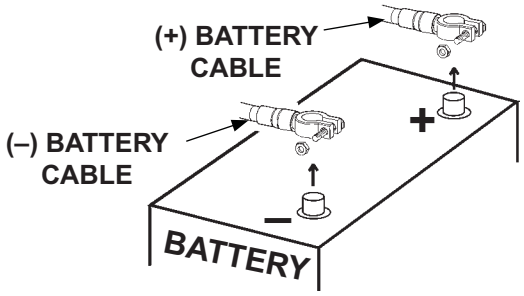
MOVING PALLET WITH FORKLIFT
FIG. 10-2

STEP 3 - FIT MEGA-FUSE TO POWER CABLE

⚠ WARNING

Prevent possible injury and damaged equipment. Ensure battery cables remain disconnected from battery until safe to reconnect. Reconnect battery cables only as instructed in this manual.

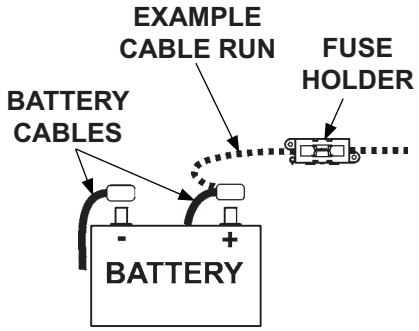
1. In the vehicle battery compartment, disconnect the **(+) and (-)** battery cables as shown in **FIG. 11-1**.



DISCONNECTING BATTERY CABLES
FIG. 11-1

NOTE: Fuse must be placed as close as possible to **(+)** terminal on vehicle battery.

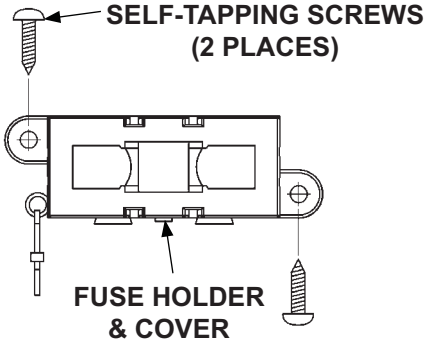
2. Position fuse holder (Parts Box item) on inside wall of vehicle battery compartment **(FIG. 11-2)** near **(+)** battery terminal.



POSITIONING FUSE HOLDER
FIG. 11-2

STEP 3 - FIT MEGA-FUSE TO POWER CABLE - Continued

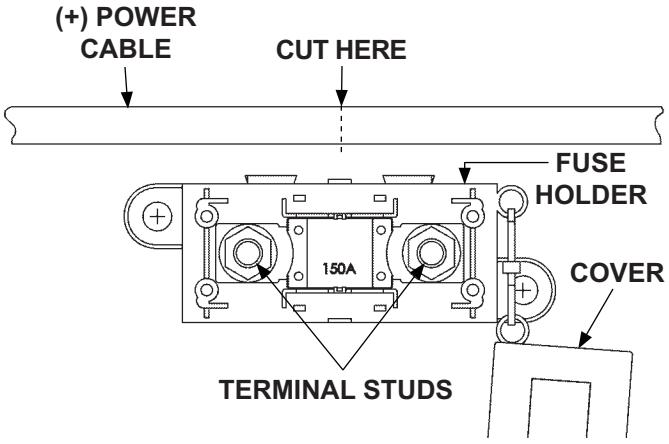
3. Use fuse holder **(FIG. 12-1)** to mark and drill 2 holes in wall of the battery compartment. Fasten fuse holder to battery compartment with 2 self-tapping screws.



FASTENING FUSE HOLDER TO BATTERY COMPARTMENT
FIG. 12-1

> **NOTE:** Ensure there is enough cable to run from the **(+)** battery post to the fuse holder terminal, without putting strain on the cable.

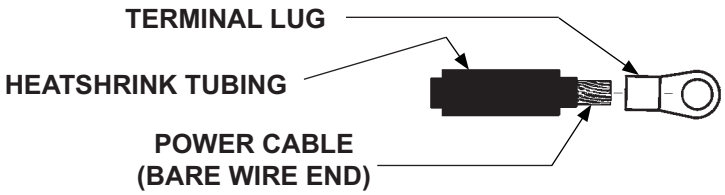
4. Run the **(+)** power cable to the fuse holder **(FIG. 12-2)**. Then, open the cover of the fuse holder. Cut the **(+)** power cable as shown in **FIG. 12-2**.



FITTING POWER CABLE TO FUSE HOLDER
FIG. 12-2

STEP 3 - FIT MEGA-FUSE TO POWER CABLE - Continued

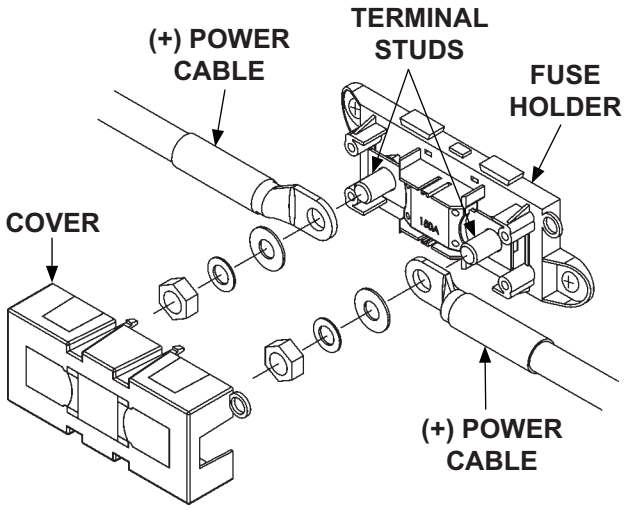
5. Put heatshrink tubing (Parts Box item) **(FIG. 13-1)** over each bare cable end (leave room for terminal lug). Crimp a terminal lug (Parts Box item) on each bare end of power cable **(FIG. 13-1)**. Then shrink the heatshrink tubing over the barrel of the lug **(FIG. 13-2)**.



PLACING TERMINAL LUG & HEATSHRINK TUBING ON POWER CABLE
FIG. 13-1

TYPICAL POWER CABLE WITH TERMINAL LUG INSTALLED
FIG. 13-2

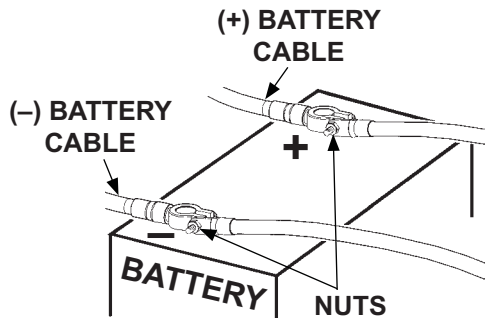
6. Connect both of the **(+)** power cable ends to the terminal studs on the fuse holder **(FIG. 13-3)**. Tighten nuts securely.



CONNECTING (+) CABLE TO FUSE HOLDER
FIG. 13-3

> **NOTE: MAXON** recommends using dielectric grease on all electrical connections.

7. Reconnect **(+)** battery cable and **(-)** battery cable to vehicle battery **(FIG. 13-4)**. Tighten the connector nuts securely.



RE-CONNECTING VEHICLE BATTERY CABLES
FIG. 13-4

STEP 4 - INSTALL EXTERNAL CONTROL & BRACKET

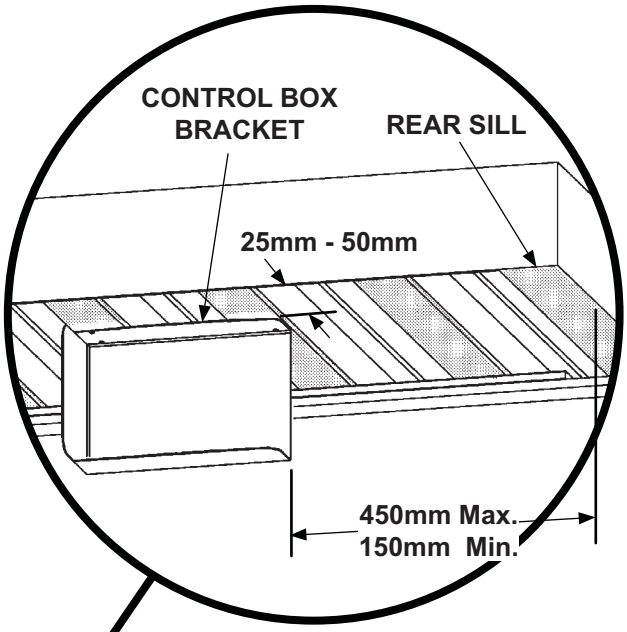
CAUTION

Prevent damage to control box. Make sure installed control box does not protrude from the vehicle body.

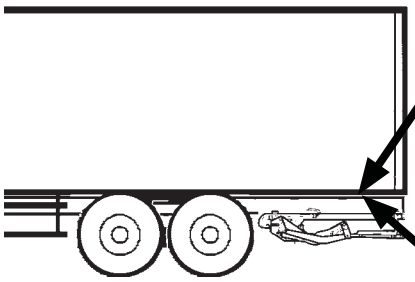
CAUTION

To protect the original paint system, a 3" wide area of paint must be removed from bracket on all sides of the weld area before welding.

1. Remove external control bracket **(FIG. 14-2)**. Position external control bracket on vehicle body as shown in **FIGS. 14-1 and 14-2**.



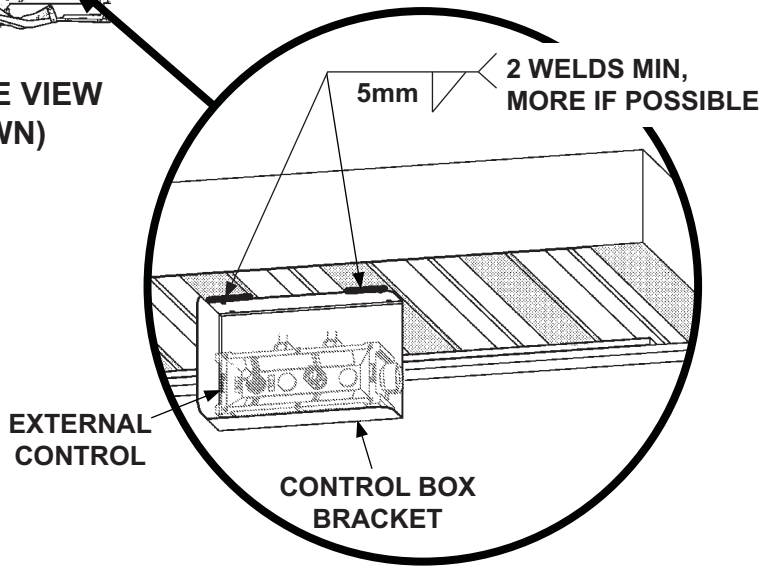
POSITIONING CONTROL BRACKET FIG. 14-2



VEHICLE NEARSIDE VIEW (TRAILER SHOWN) FIG. 14-1

2. Weld external control bracket to crossmembers under vehicle body **(FIG. 14-3)**.

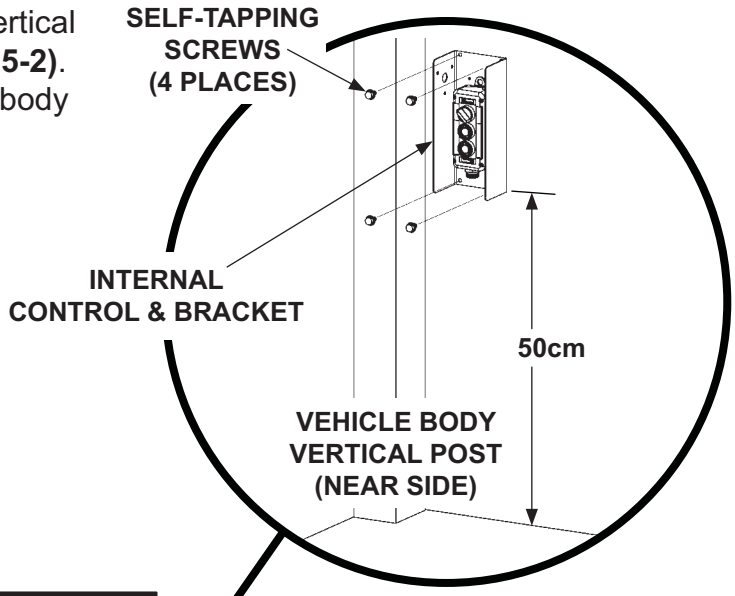
3. When welds have cooled, attach external control to bracket **(FIG. 14-3)**.



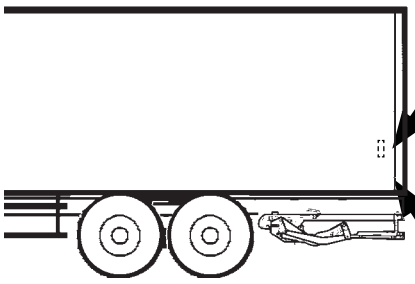
WELDING CONTROL BRACKET TO CROSSMEMBERS FIG. 14-3

STEP 5 - INSTALL INTERNAL CONTROL & BRACKET

1. Use internal control bracket to mark and drill 4 holes for mounting next to vertical post (curb side) **(FIGS. 15-1 and 15-2)**. Bolt internal control box to vehicle body with self-tapping screws.



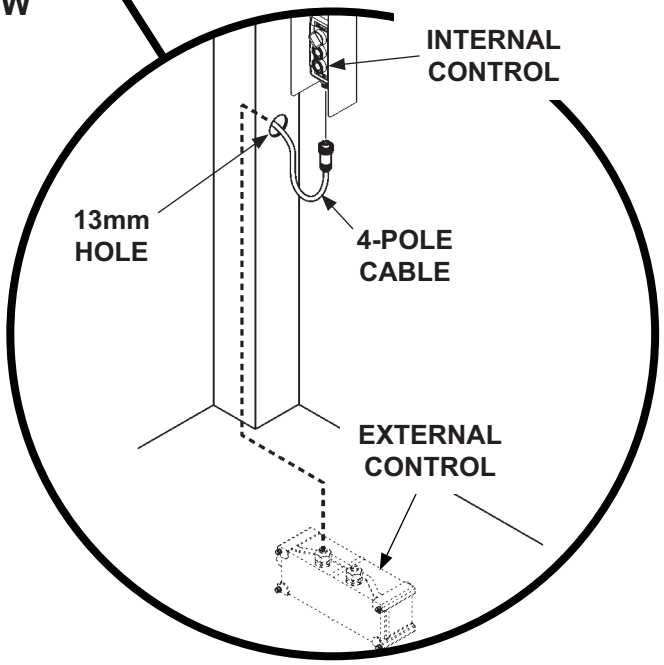
POSITIONING & BOLTING CONTROL BRACKET FIG. 15-2



VEHICLE NEARSIDE VIEW (TRAILER SHOWN) FIG. 15-1

2. If necessary, mark and drill 13mm hole for internal control 4-pole cable **(FIG. 15-3)**. Then run 4-pole cable from external control to internal control **(FIG. 15-3)**.

3. Connect 4-pole cable to internal control **(FIG. 15-3)**.

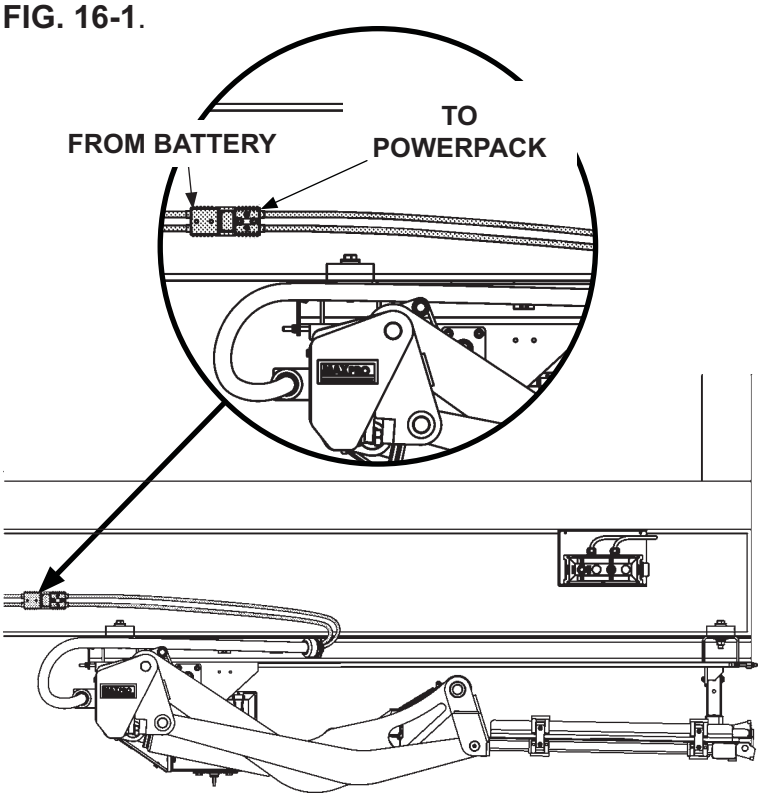


RUNNING CABLE FROM EXTERNAL CONTROL TO INTERNAL CONTROL FIG. 15-3

STEP 6 - CONNECTING POWER TO TAIL LIFT

NOTE: MAXON recommends using dielectric grease on all electrical connections.

Connect power cable as shown in **FIG. 16-1**.



CONNECTING POWER CABLES
FIG. 16-1

STEP 7 - CHECKING HYDRAULIC FLUID LEVEL

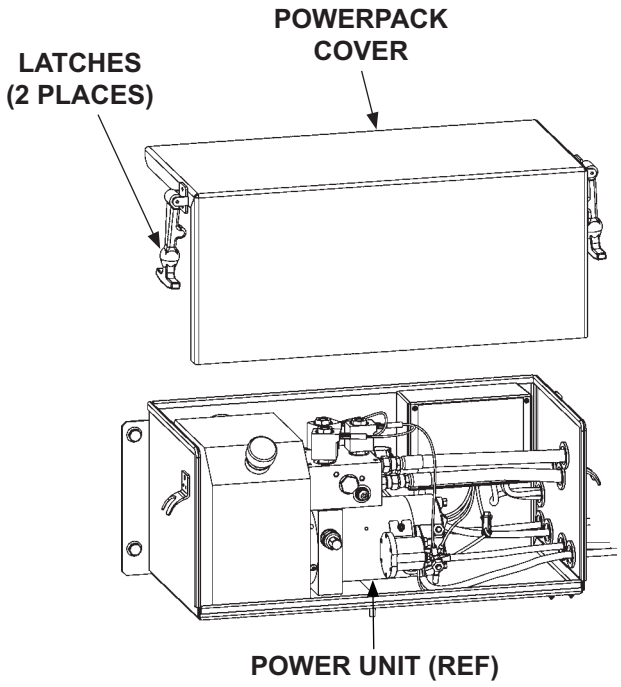
CAUTION

Keep dirt, water and other contaminants from entering the hydraulic system. Before opening the hydraulic fluid reservoir filler cap, drain plug and hydraulic lines, clean up contaminants that can get in the openings. Also, protect the openings from accidental contamination.

1. Unstow and lower platform to ground.

2. Unlatch and open powerpack cover **(FIG. 17-1)**.

3. Check the hydraulic fluid level in reservoir as follows. With platform on the ground, level should be as shown in **FIG. 17-2**.

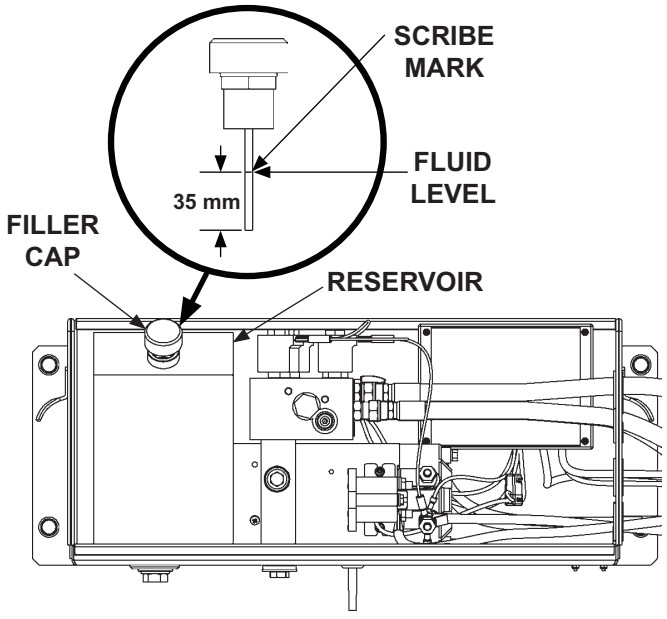


UNLATCH COVER
FIG. 17-1

CAUTION

Do not fill reservoir to the FULL mark on the dipstick. Hydraulic fluid can overflow from the reservoir.

4. If needed, add **ISO 22** hydraulic fluid to the reservoir as follows. Remove filler cap **(FIG. 17-2)**. Scribe a mark 35 mm above bottom of dipstick **(FIG. 17-2)**. Fill the reservoir with hydraulic fluid to scribed mark on dipstick. Reinstall filler cap **(FIG. 17-2)**.

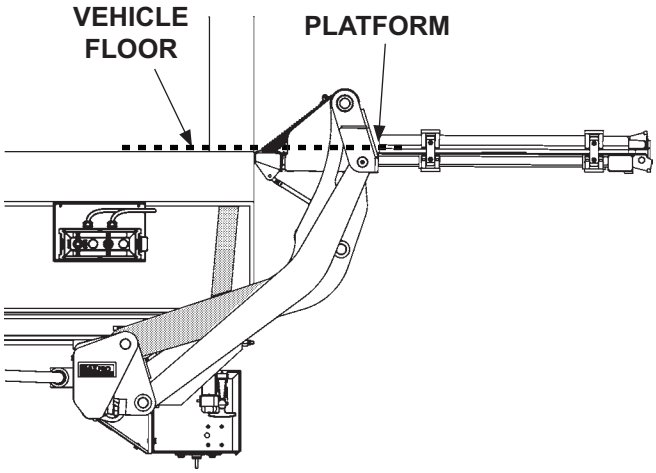


FLUID LEVEL IN POWER UNIT
FIG. 17-2

STEP 8 - LEVELING PLATFORM

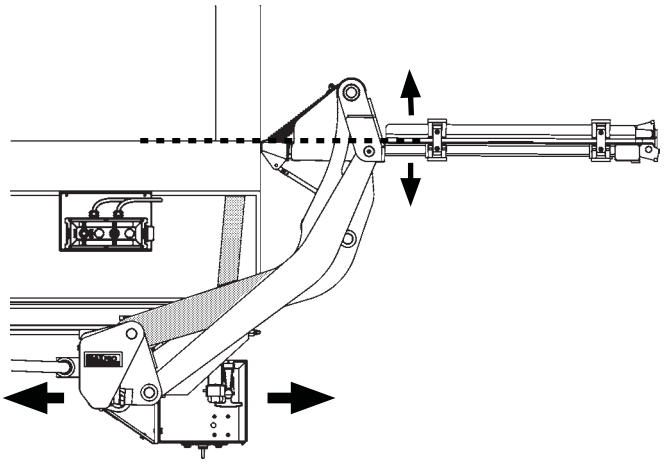
NOTE: Refer to **Operation Manual** for Tail Lift operating procedures.

1. Unstow platform. Then, raise platform to floor level **(FIG. 18-1)**. Top surface of platform should be level with vehicle floor.



PLATFORM AT FLOOR LEVEL
FIG. 18-1

2. If necessary, loosen frame clamp bolts just enough to slide Tail Lift to the front or rear on vehicle frame **(FIG. 18-2)**. When platform is level with vehicle floor, tighten all 10 clamp bolts securely. Torque each bolt to **201 Nm**.

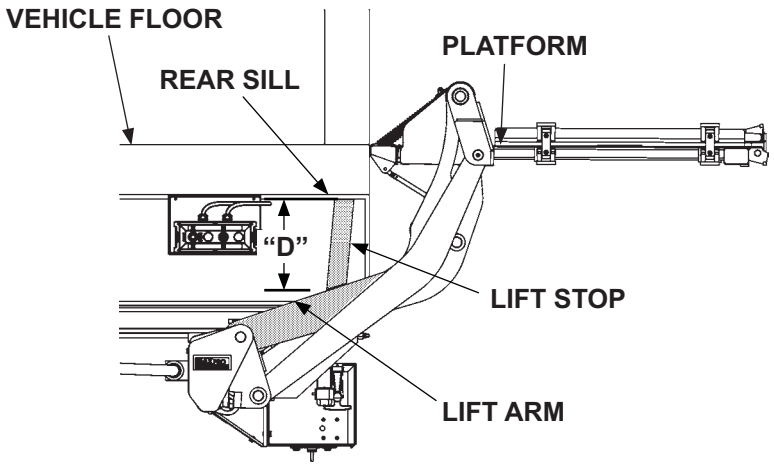


REPOSITIONING TAIL LIFT TO LEVEL THE PLATFORM TO VEHICLE FLOOR
FIG. 18-2

STEP 9 - ATTACH LIFT STOPS

NOTE: Perform this procedure only after platform has been leveled correctly.

1. With platform at floor level. measure distance **"D"** from bottom of rear sill to top of each lift arm **(FIG. 19-1)**.

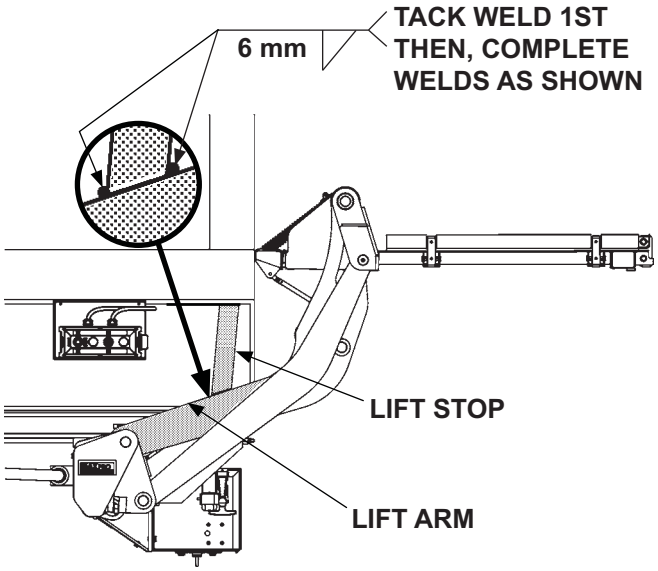


MEASURING/POSITIONING LIFT STOP (PLATFORM AT FLOOR LEVEL) FIG. 19-1

2. Cut a lift stop block (Parts Box item) to length and shape the ends to fit securely between top of each lift arm and bottom of rear sill **(FIG. 19-1)**.

3. Tack weld lift stop to each lift arm **(FIG. 19-2)**. Then, raise and lower platform to check that platform stops at floor height. Reposition lift stops if necessary.

4. When lift stops are positioned correctly, weld each lift stop to lift arm **(FIG. 19-2)**.



WELDING LIFT STOPS FIG. 19-2

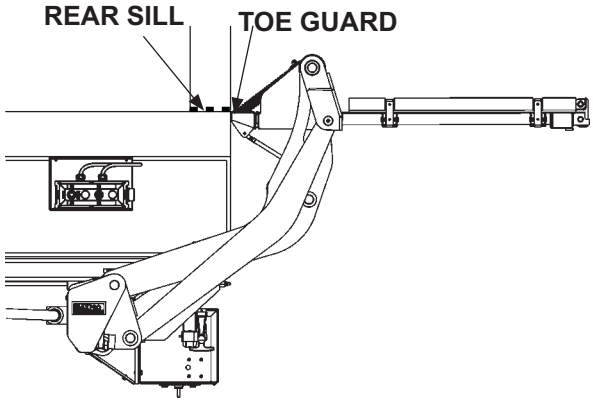
STEP 10 - TOE GUARD ADJUSTMENT (IF EQUIPPED)

NOTE: Toe guard adjustment must be done before the platform adjustment.

NOTE: Top surface of toe guard should be adjusted, if necessary, to be flush with the rear sill level on the vehicle, across the length of toe guard.

NOTE: Refer to **Operation Manual** for Tail Lift operating procedures.

1. Unstow platform. Then, raise platform to floor level **(FIG. 20-1)**. Check if the top surface of toe guard is flush with the rear sill level on the vehicle, across the length of toe guard. Do this adjustment if the top surface of the toe guard must be raised or lowered to be flush with rear sill on vehicle.



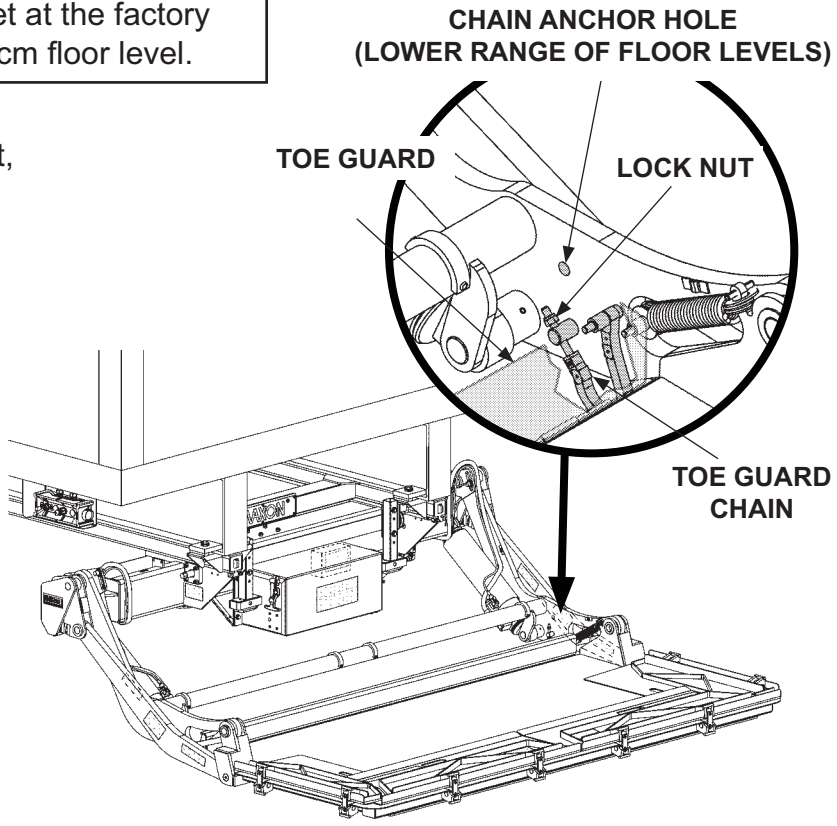
PLATFORM AT FLOOR LEVEL, TOE GUARD SHOWN FLUSH WITH REAR SILL
FIG. 20-1

NOTE: Toe guard chain is set at the factory for vehicles with 143cm floor level.

2. If necessary to raise or lower toe guard requires adjustment, lower platform to ground level **(FIG. 20-2)**.

3. Adjust toe guard chain as follows **(FIG. 20-2)**.
- Turn lock nut clockwise to lower the toe guard.
- Turn lock nut anti-clockwise to raise the toe guard.
- Bolt chain-end to anchor hole for lower range of floor levels.

4. Repeat steps 1 through 3 until rear sill and toe guard are flush.



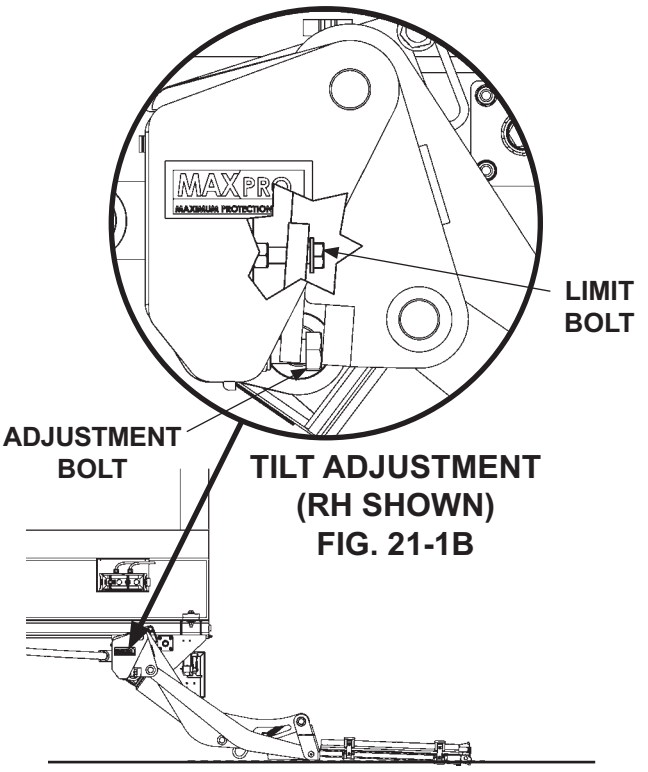
PLATFORM AT GROUND LEVEL
FIG. 20-2

STEP 11 - PLATFORM ADJUSTMENT

NOTE: Park vehicle on level ground and unload vehicle before doing this procedure.

1. Lower platform to ground level **(FIG. 21-1A)**.

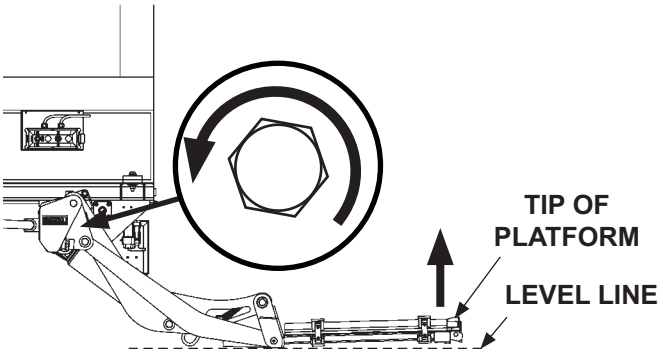
2. Loosen adjustment and limit bolts on both sides of platform **(FIG. 21-1B)**.



TILT ADJUSTMENT (RH SHOWN) FIG. 21-1B

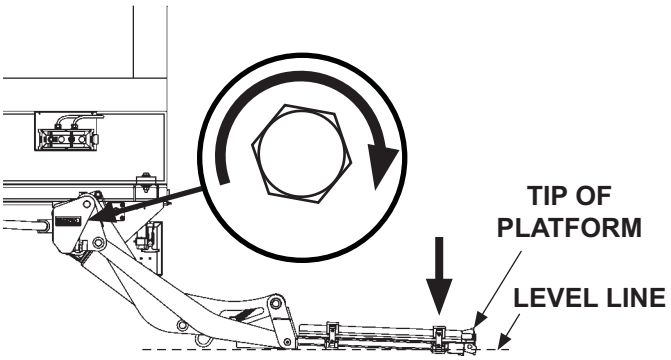
PLATFORM LOWERED TO GROUND FIG. 21-1A

3. Turn adjustment bolts counterclockwise to tilt the tip of platform up **(FIG. 21-2)**, or turn clockwise to tilt down **(FIG. 21-3)**.



RAISE TIP OF PLATFORM FIG. 21-2

4. Once platform is adjusted, tighten limit bolts securely on both sides of platform **(FIG. 21-1B)**.

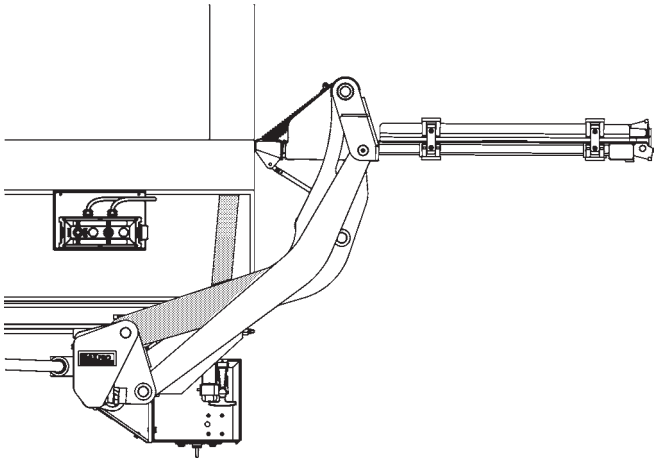


LOWER TIP OF PLATFORM FIG. 21-3

STEP 12 - ATTACH WARNING FLAGS

NOTE: Refer to **Operation Manual** for Tail Lift operating procedures.

1. Raise platform to floor level **(FIG. 22-1)**.

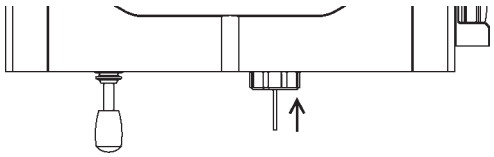


PLATFORM AT FLOOR LEVEL
FIG. 22-1

⚠ WARNING

Prevent possible injury and damaged equipment. While working under platform, ensure power is disconnected from Tail Lift controls and platform is supported with suitable jack stands.

2. Turn off the power switch at the external control **(FIG. 22-2)**.

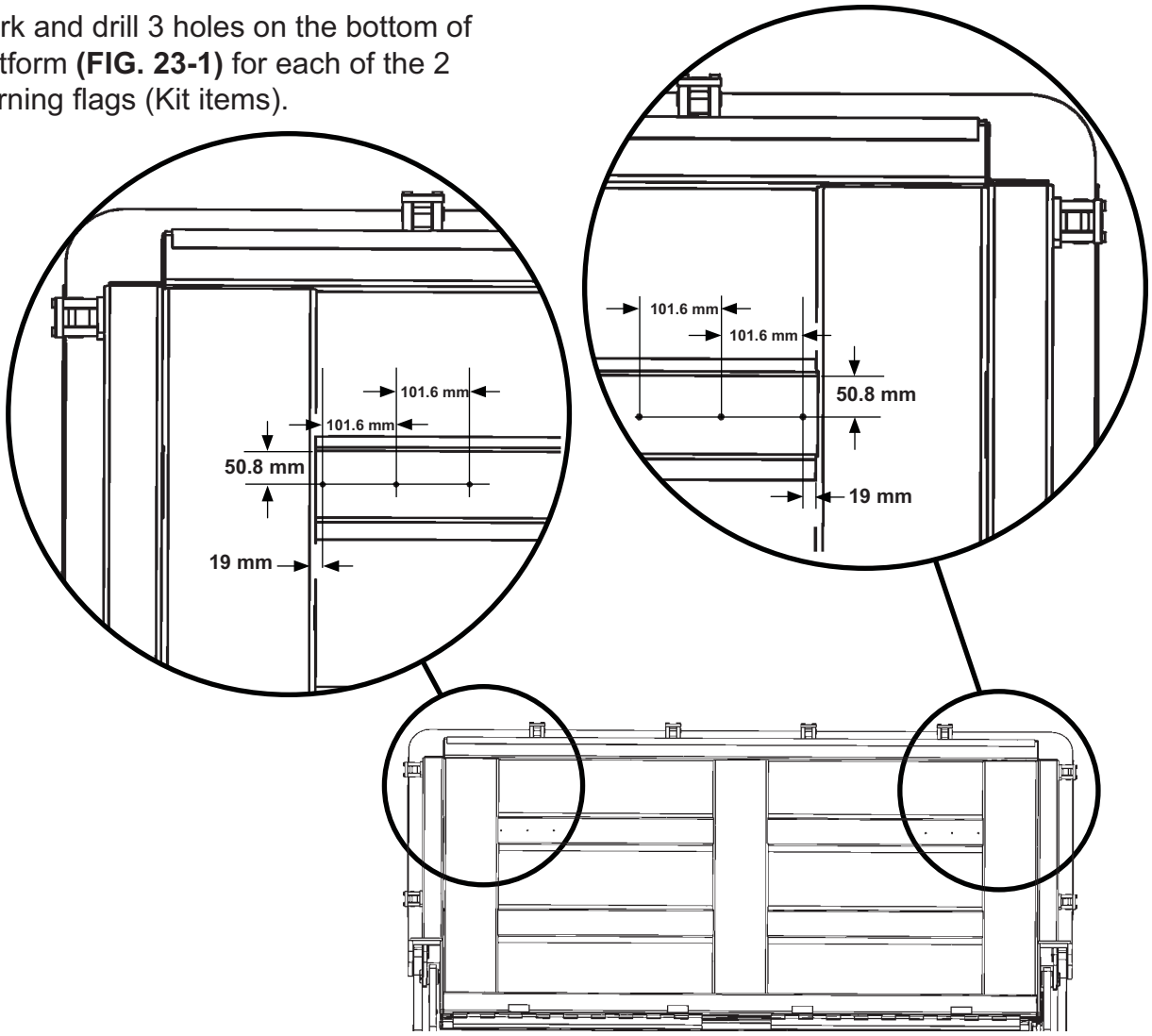


TURNING OFF POWER TO TAIL LIFT
FIG. 22-2

3. Support platform with jack-stands.

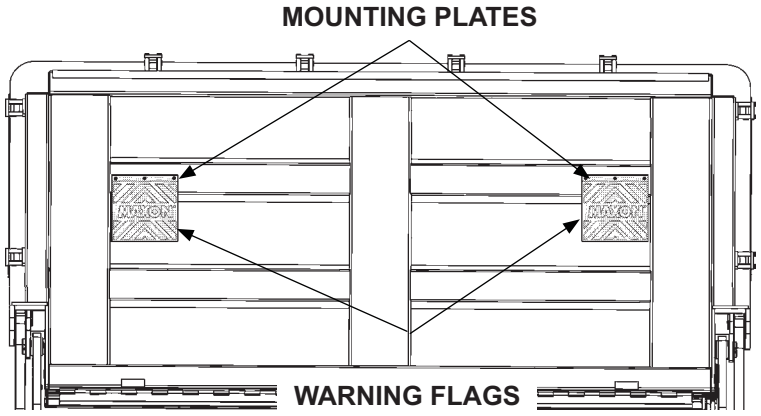
STEP 12 - ATTACH WARNING FLAGS -Continued

4. Mark and drill 3 holes on the bottom of platform **(FIG. 23-1)** for each of the 2 warning flags (Kit items).



MARKING HOLES FOR WARNING FLAGS (BOTTOM VIEW OF PLATFORM) FIG. 23-1

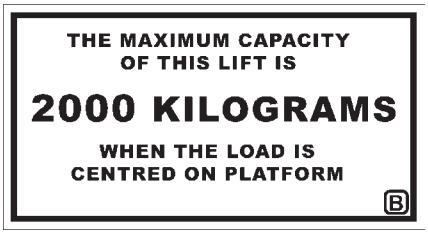
5. Screw or rivet (Kit items) the 2 warning flags and mounting plates to platform **(FIG. 23-2)**.



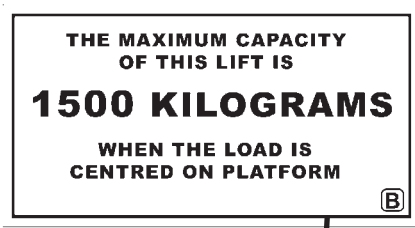
ATTACHING WARNING FLAGS FIG. 23-2

6. Remove jack stands supporting the platform.

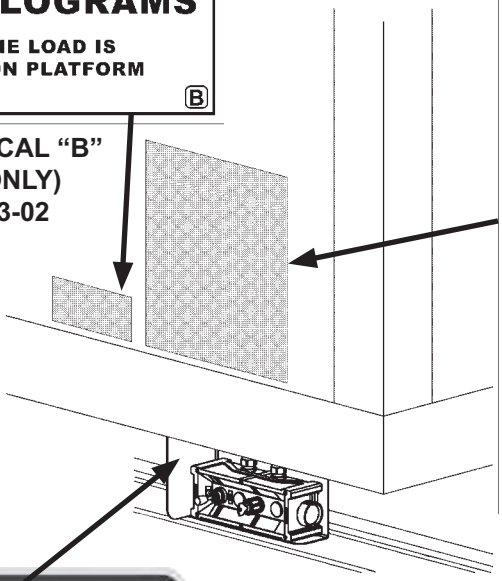
ATTACH DECALS

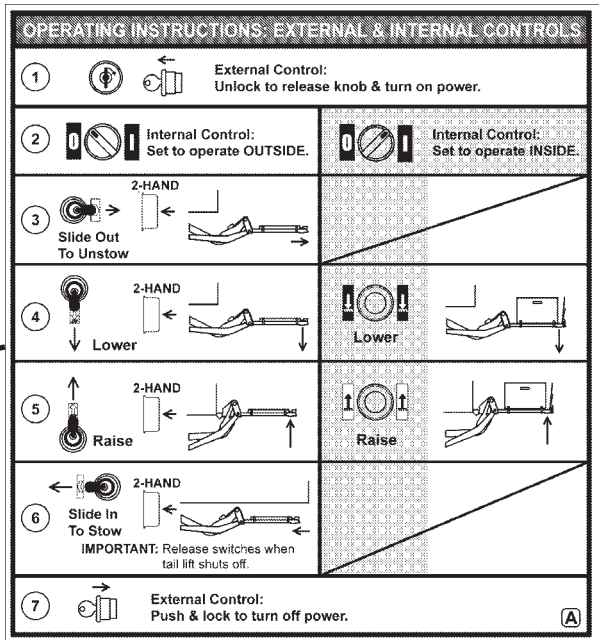


CAPACITY DECAL "B"
(MAX20S ONLY)
P/N 267833-03



CAPACITY DECAL "B"
(MAX15S ONLY)
P/N 267833-02

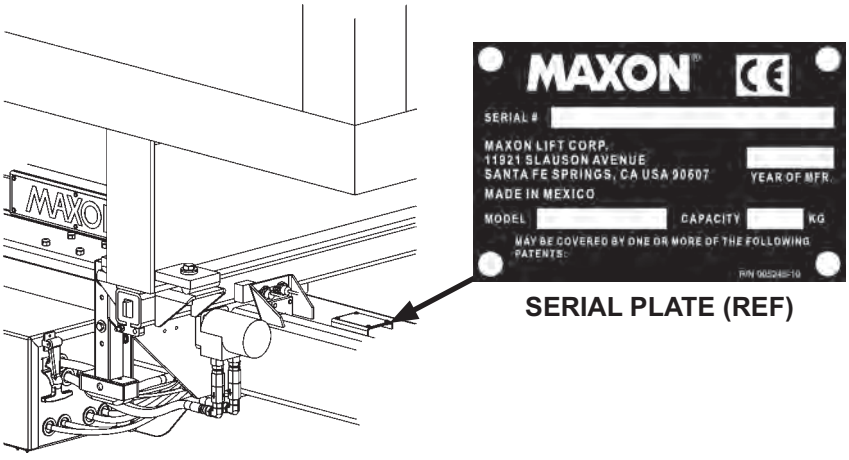




OPERATION DECAL "A"
P/N 267833-02 (MAX15S)
P/N 267833-03 (MAX20S)

DECAL
P/N 268417-01

FIG. 24-1



SERIAL PLATE (REF)

FIG. 24-2

DECAL POSITIONS

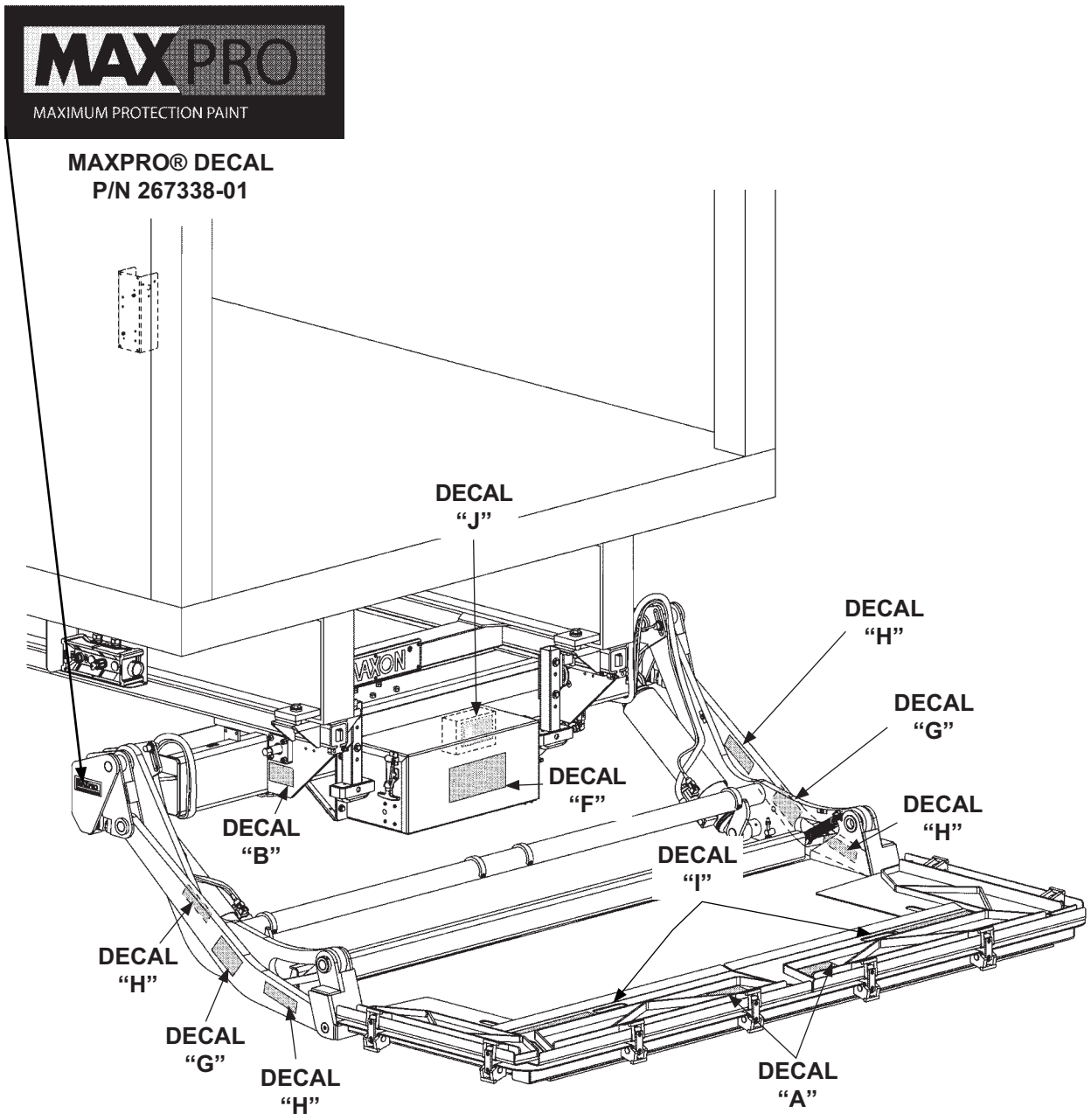


FIG. 25-1

DECAL POSITIONS - Continued

WARNING

When unstowing & stowing platform, stay clear of buffers. (A)

WARNING

To prevent personal injury & equipment damage, avoid working on the Tail Lift when:

- Tail Lift is connected to battery
- Platform is raised off the ground & unsupported

If Tail Lift requires power for maintenance, never jumper electrical connections in the powerpack or controls. Tail Lift could move unexpectedly. Refer to Maintenance Manual for additional safety instructions. (F)

WARNING

To avoid possible injury and damage to equipment, never stand on lift arms or tilt arms. (G)

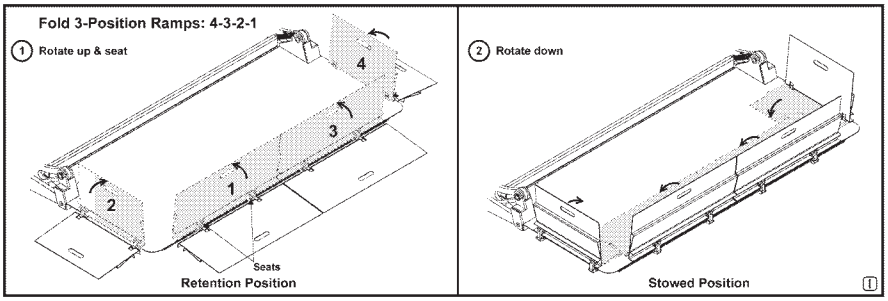
WARNING

Avoid possible injury & damage to equipment if slider moves under power. Ensure battery is disconnected from Tail Lift before operating the slider manually. (B)

WARNING

Keep hands & feet clear of lifting arms.

(H)



WARNING

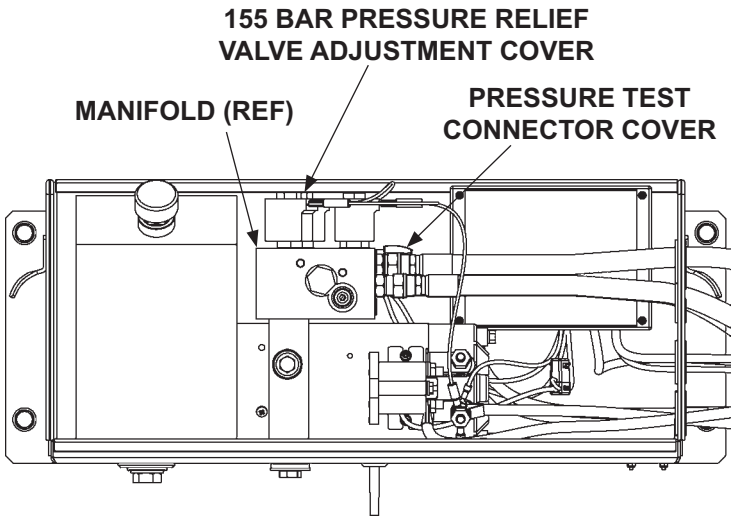
To prevent personal injury & equipment damage, avoid working on the logic controller while Tail Lift is connected to battery. If Tail Lift requires power for maintenance, never jumper electrical connections in the logic controller. Tail Lift could move unexpectedly. (J)

DECAL SHEET 267834-01
FIG. 26-1

LOAD TESTING & TEST CERTIFICATE

NOTE: To finish installation, the installer must do the Tail Lift Load Testing procedure and complete the **Tail Lift Test Certificate** (P/N 5-90028)

1. The pressure relief valve is located on manifold **(FIG. 27-1)**. Adjustment is performed as part of the **Tail Lift Load Testing** procedure **(P/N 5-90020)** and recorded on **Tail Lift Test Certificate (P/N 5-90028)**. The instructions and certificate are supplied with the document kit.

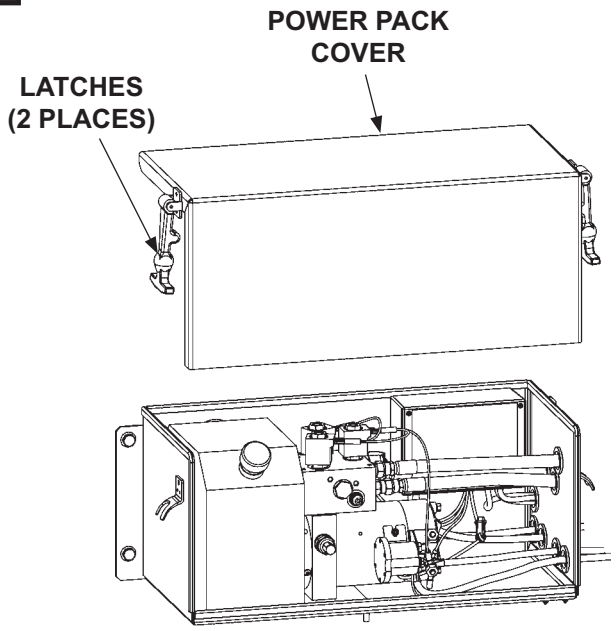


POWER PACK PRESSURE TEST CONNECTOR AND ADJUSTMENT (TOP VIEW)
FIG. 27-1

CAUTION

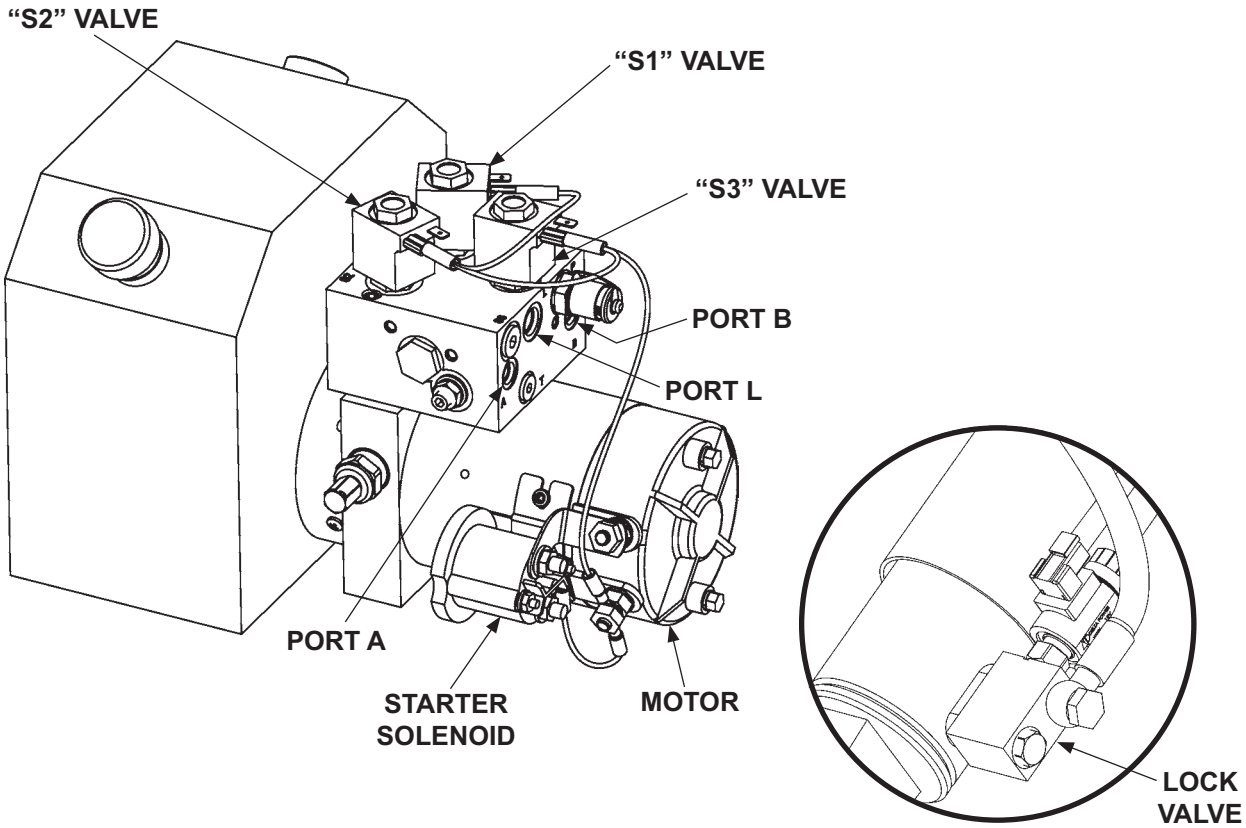
Powerpack cover must be correctly secured to prevent it from becoming a hazard. Ensure cover is latched to box.

2. When adjustment is completed, reinstall and latch the power pack cover as shown in **FIG. 27-2**.



LATCH COVER
FIG. 27-2

SYSTEM DIAGRAMS
PUMP & MOTOR SOLENOID OPERATION

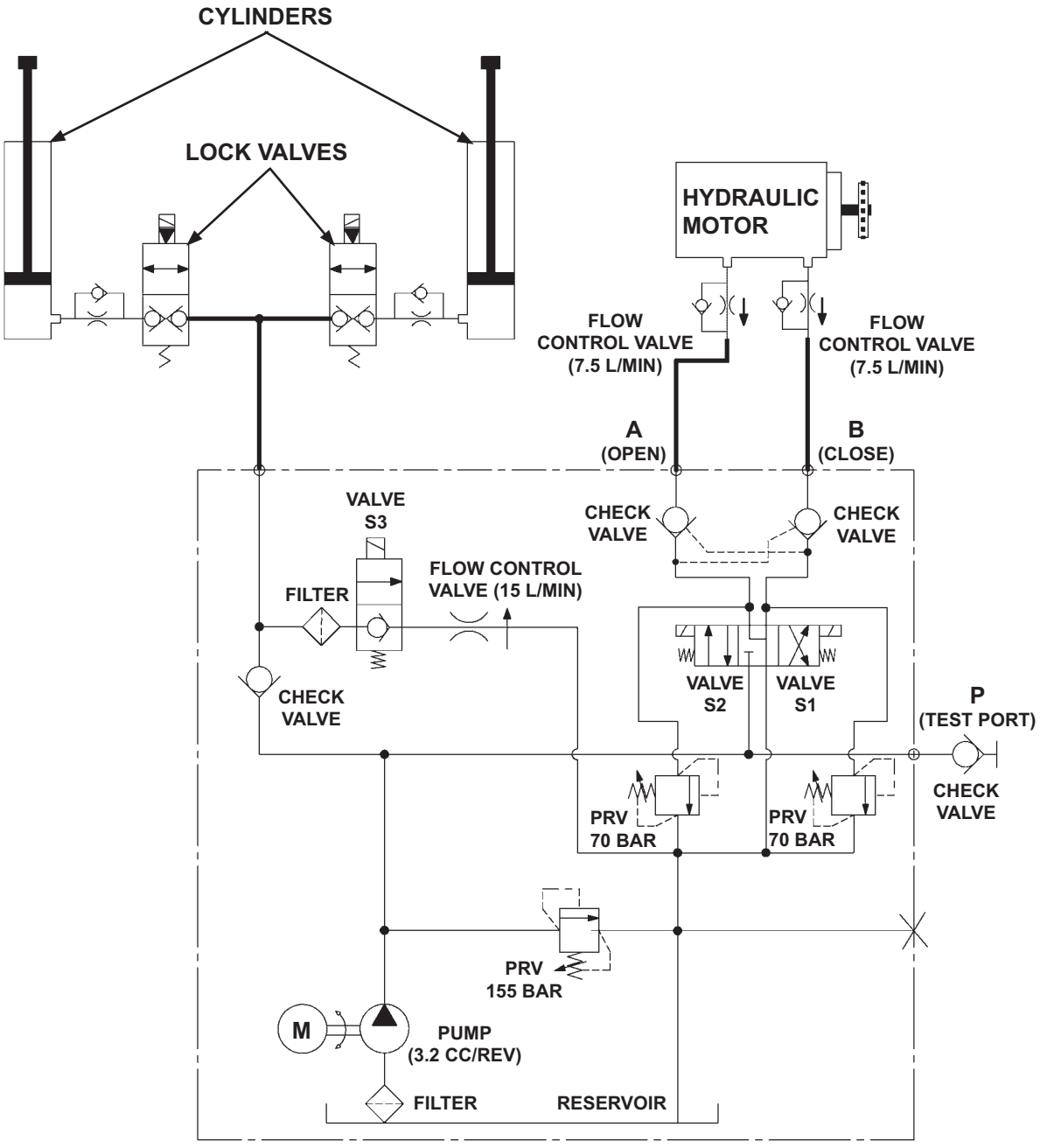


LOCK VALVE ON CYLINDER

POWER UNIT MOTOR & SOLENOID OPERATION						
TAIL LIFT FUNCTION	PORT	SOLENOID OPERATION (✓ MEANS ENERGIZED)				
		MOTOR	VALVE "S1"	VALVE "S2"	VALVE "S3"	LOCK VALVE
RAISE	L	✓	-	-	-	✓
LOWER	L	-	-	-	✓	✓
SLIDE OPEN	A	✓	-	✓	-	-
SLIDE CLOSED*	B	✓	✓	-	-	-
*Platform may raise or lower automatically to the correct height to be stowed.						
REFER TO VALVES SHOWN ON HYDRAULIC SCHEMATIC						

TABLE 28-1

SYSTEM DIAGRAMS - Continued
HYDRAULIC SCHEMATIC



NOTE: PRV (PRESSURE RELIEF VALVE)

FIG. 29-1

SYSTEM DIAGRAMS - Continued

ELECTRICAL SCHEMATIC

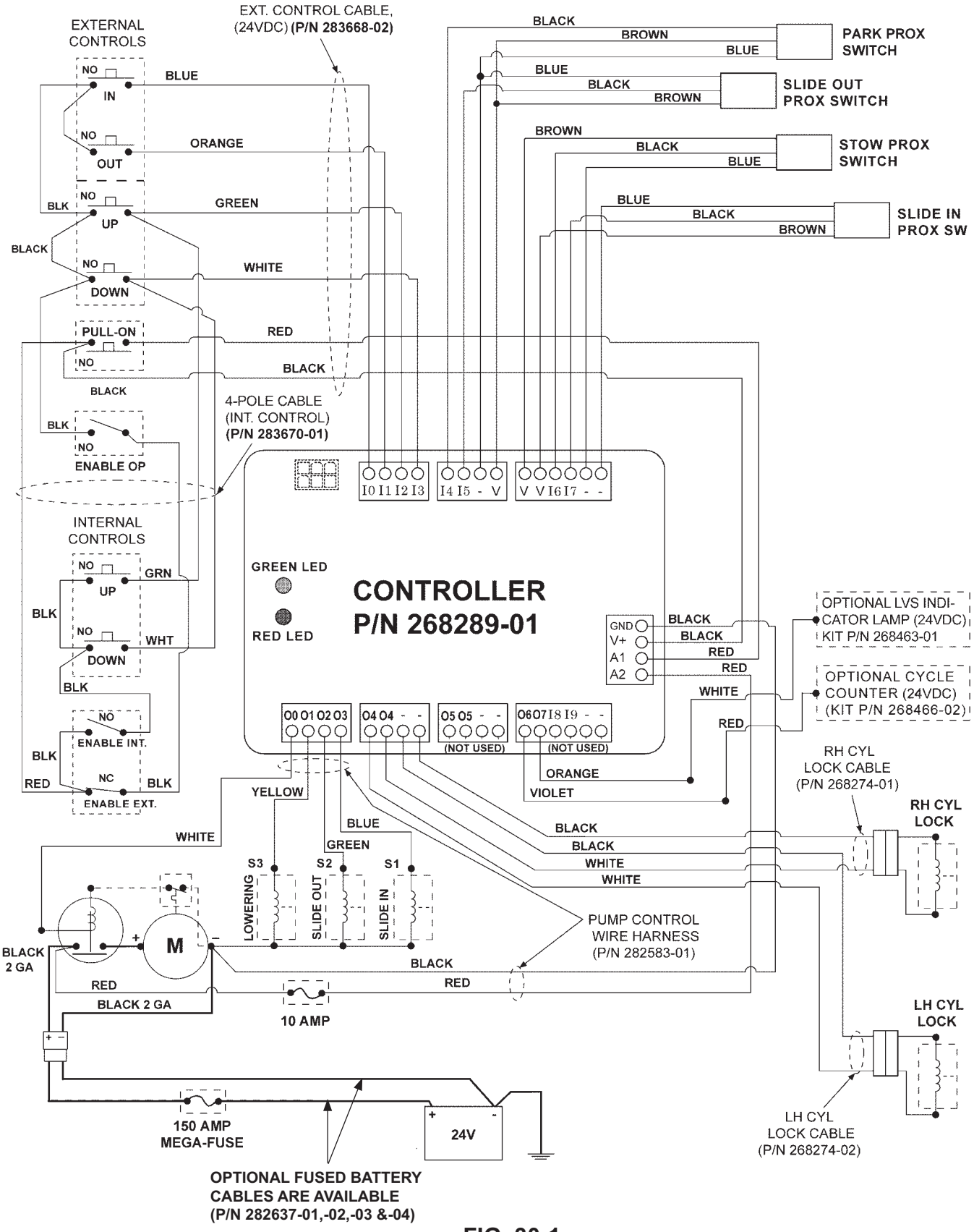


FIG. 30-1